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**EPA Superfund
Explanation of Significant Differences:**

**SANGAMO WESTON, INC./TWELVE-MILE CREEK/LAKE
HARTWELL PCB CONTAMINATION
EPA ID: SCD003354412
OU 01
PICKENS, SC
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U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV SUPERFUND PROGRAM
EXPLANATION OF SIGNIFICANT DIFFERENCES

Sangamo Weston/Twelve-Mile Creek/Lake Hartwell
PCB Contamination Site
Operable Unit One
Pickens, Pickens County, South Carolina

1.0 Introduction

The purpose of this Explanation of Significant Differences (ESD) is to provide factual information to the public regarding changes in proposed remedial activities for the Sangamo Weston/Twelve-Mile Creek/Lake Hartwell PCB Contamination Site, Operable Unit One, located in Pickens County, South Carolina, hereinafter referred to as the Site.

First, this ESD explains the results of EPA's evaluation of inorganic contamination (metals) at the Site. This evaluation was performed pursuant to a previous ESD dated September 10, 1991. This ESD modifies the existing Record of Decision (ROD) for the Site by concluding that metals contamination of surface soils and ground water does not pose an unacceptable level of risk to human health or the environment. The results of analyses of ground-water and soil samples taken at the seven individual locations which comprise the overall Site are presented. The results of analyses for metals in these samples indicate that metals contaminant concentrations in the ground water do not exceed the appropriate ground-water protection criteria for the Site and that surface soils are not contaminated above health-based criteria established by standard risk assessment procedures.

Second, this ESD modifies the existing ROD by updating the ground-water remediation criteria. At the time that the previous ESD was prepared, ground-water remediation criteria for the contaminants beryllium and thallium were both set at 0.001 part per million (ppm), equivalent to 1 part per billion (ppb). These remediation criteria were based upon toxicological data related to health effects caused by exposure to these contaminants, but EPA had not at that time promulgated drinking water standards (known as Maximum Contaminant Levels, or MCLs) for beryllium or thallium. In July, 1992, EPA published in the Federal Register final MCLs for beryllium and thallium. These MCLs are 4 ppb and 2 ppb, respectively. This ESD modifies the existing ROD (as modified in turn by the previous ESD) by adopting the promulgated MCLs as ground-water remediation criteria for beryllium and thallium.

Third, this ESD also modifies the existing ROD for the Site by

waiving certain specific applicable requirements identified in the ROD for the storage of PCB wastes. Under the terms of the National Contingency Plan (NCP), EPA has established criteria by which the Agency may waive applicable or relevant and appropriate requirements (ARARs) identified during the RI/FS process. EPA has determined that the ARAR requiring the construction of a storage facility complying with the requirements of regulations established pursuant to the authority of the Toxic Substances Control Act (TSCA) should be waived according to these criteria.

This ESD is issued as an EPA public participation responsibility pursuant to Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and Section 300.435(c)(2)(i) of the NCP, 40 CFR Part 300. EPA intends to solicit public comment regarding this ESD for a 30-day period.

The administrative record for this Site contains the information upon which this ESD is based, and includes the ROD for Operable Unit One. This ESD will become part of that administrative record which may be found at the following locations:

Pickens County Library, Pickens, SC
Village Library, Pickens, SC
Hart County Library, Hartwell, GA
R.M. Cooper Library, Clemson University, Clemson, SC

2.0 Background

The remedy for the Site is presently divided into two Operable Units. Operable Unit One (OU1) will address that portion of the Site generally consisting of seven parcels of property where polychlorinated biphenyls (PCBs), volatile organic chemicals (VOCs), and metals were released into the soils and ground water. These seven parcels are the Sangamo Weston plant property and six private parcels located in the vicinity of the town of Pickens, SC, in Pickens County. These six outlying or satellite disposal sites are known as the Breazeale, Crossroads, Dodgens, Nix, Trotter and Welborn sites. This ESD modifies only the ROD for OU1. Throughout this ESD the term Site (upper case) is used to mean the seven properties described above. These locations are identified on the map included as Appendix A.

The remedial action for PCBs and VOCs contamination at the Site is described in detail in the ROD signed on December 19, 1990. In summary, the remedy selected in the ROD consists of ground-water remediation for PCBs and VOCs using ground-water extraction and treatment at the Plant, Breazeale, Crossroads and Dodgens sites; and excavation of soils contaminated with PCBs and VOCs at the Plant property and at the six satellite sites. All excavated soils

will be treated at the plant property by means of low temperature thermal desorption (LTTD), a thermal separation technology.

On September 10, 1991, EPA issued an ESD for OU1 at this Site that identified inorganic contaminants (metals) found during the Remedial Investigation (RI) that may have exceeded criteria based upon the protection of human health. That ESD also modified the ROD by establishing remedial criteria for metals contamination in ground water and by providing for additional testing and data gathering for the purpose of evaluating compliance with those criteria. The previous ESD also clarified the criteria established for PCB excavation at two of the satellite sites, and contained an explanation of a response made by EPA to a comment raised during a public meeting held to discuss the ROD for the Site. Finally, the previous ESD committed EPA to evaluate the data gathered on metals contamination and to make a determination regarding the necessity of providing remediation for metals contamination by means of a future ESD or ROD amendment.

3.0 Site History

Sangamo Weston, Inc., owned and operated a capacitor manufacturing facility at the Plant property. This manufacturing activity began in 1955, and was continued by Sangamo Weston until May, 1987, when Sangamo Weston sold the operation and leased the buildings and a portion of the Plant site property to another manufacturer. On December 31, 1989, Sangamo Weston merged with Schlumberger Industries, Inc., (SII). SII is the present owner of the Plant property portion of the Site. During the approximate period 1955-1977, the facility manufactured capacitors which used a dielectric fluid which contained PCBs. During the manufacturing process, capacitors were tested and inspected, and those that failed to meet quality control criteria were discarded along with other wastes from the plant operation. Some of these wastes were disposed of in the seven parcels that comprise the Site.

4.0 Description of the Remedy

The ROD specifies that soils contaminated with PCBs and VOCs will be excavated and treated by means of LTTD. This treatment technology consists of a low temperature thermal heating unit which vaporizes PCBs and VOCs from contaminated soils and waste materials and recondenses them into a concentrated form so that they may be properly disposed of at an appropriate facility.

Soils and waste material contaminated with PCBs and VOCs will be excavated from the Site until acceptable levels, based on the protection of human health as specified in the ROD, are achieved. All excavated soils and waste materials contaminated with PCBs and VOCs will be transported from the six satellite sites to the Plant site and will be treated at that location using the LTTD

technology. Excavated soils and waste material from the Plant site will also be treated at this location using the same LTTD system. All contaminated soils and wastes will be treated to a residual PCB concentration of 2 parts per million (ppm) or less. The treated soils will then be disposed of on the Plant site property. Due to the fact that LTTD is considered to be an innovative technology, treatability studies are being performed to determine if the technology can achieve the specified performance standard of 2 ppm residual PCBs. Should the treatability studies demonstrate that LTTD is ineffective for all or a portion of the contaminated soils and waste materials, EPA may, if necessary, amend the ROD to specify an alternative treatment technology for remediation of these media.

With respect to contaminated ground waters at the various sites, the remedy selected in the ROD consisted of extraction and treatment to levels meeting ARARs or other criteria determined to be protective of human health. The treatment technology identified in the ROD is a combination of air stripping and/or carbon adsorption as necessary to achieve ARARs for the discharge of treated ground waters to surface waters. Extraction of contaminated ground water will continue until such time as the ground-water remediation criteria specified in the ROD are achieved, or until EPA makes a further determination that it has become technically impracticable to achieve those criteria.

After the ROD was signed in 1990, EPA determined that the ROD did not properly address several metals which had been listed as Constituents of Concern in Table 6-1 of the Appendix to the ROD. Upon further review of the sampling data gathered during the RI, EPA likewise determined that metals contamination at the Site may have been prematurely dismissed from consideration during the Remedial Investigation/Feasibility Study (RI/FS) process. As a result, EPA had two primary concerns: (1) whether metals contamination in ground waters at the Site exceed MCLs and/or other criteria established by EPA for the protection of ground water; and (2) whether the concentrations of metals in the Site soils and waste materials result in unacceptable risk to human health based upon standard exposure scenarios.

By means of an ESD issued on September 10, 1991, EPA notified the public of these concerns and the steps that would be taken to properly address them. Those steps consisted of: (1) the establishment of remedial criteria for ground waters at the Site for six (6) metals, arsenic, beryllium, cadmium, chromium, lead and thallium; (2) a program of sampling and analysis for the same six metals in Site soils in order to determine the extent, if any, of threat to human health or the environment posed by metals in Site soils; (3) a similar program of sampling and analysis for the same six metals for Site ground waters; and (4) a determination as to what additional remedial technologies, if any, will be necessary to address metals-contaminated soils, waste materials, and ground

water.

5.0 Description of Significant Differences

5.1. Metals Contamination in Site Soils and Ground Water

In February, 1993, SII submitted reports of sampling and analyses for metals in surficial soils and ground waters at the Site. The sampling and analyses were conducted in accordance with work plans prepared by SII and submitted to EPA for review and approval. One aspect of the approved work plans was that ground-water samples would be obtained by more appropriate sampling techniques than those used during the RI. The sampling techniques used in the more recent efforts were such that the amount of suspended solids in the samples was kept to a minimum. Suspended solids in samples taken from ground-water monitoring wells can contribute to artificially high results when analyzed for metals content. Another aspect of the approved sampling and analysis program was that should these improved sampling techniques indicate that ground-water was not contaminated to unacceptably high levels with metals, no subsurface sampling for metals would be required.

The results of these sampling and analysis programs are summarized in Appendix B. At the six satellite sites, out of 798 ground-water samples for metals content, only three samples exceeded any established ground-water protection standard identified in the September 1991 ESD. All three of these exceedances were for one contaminant, lead, and one of the three was in a background well at one of the satellite sites. The other two were in one downgradient well at another satellite site; other samples from that same well were found to be contaminated at levels below the ground-water protection standard for lead. At the Plant site, out of 450 ground-water samples analyzed, only five samples were contaminated at levels which exceeded ground-water protection standards. Of these, three were found to be contaminated at unacceptably high levels for lead, one was for chromium and one for thallium. Again, in each case the well found to be contaminated at such levels was found in at least one other sampling event not to be contaminated.

In sampling of surficial soils, similar results were obtained. At the six satellite sites, only one of 522 samples analyzed for metals content was contaminated to a level that would constitute an unacceptable level of risk to human health under standard residential exposure assumptions. This sample was likewise found to be contaminated with lead, and was obtained from the Welborn site. Surficial soils at the Plant site were not submitted to an evaluation based upon residential exposure scenarios due to the low likelihood of such exposure occurring either in the interim before remediation takes place or thereafter.

In addition, the surficial soil results were subjected to a

statistical evaluation wherein the results of analysis of samples taken from affected areas of the six satellite sites were compared to background levels. This evaluation demonstrated that there was no statistically significant difference between the levels of contamination found in the affected areas of the site and background levels of metals in the surficial soils. These findings indicate that the soils overlying the six satellite disposal sites are essentially the same as naturally-occurring soils in the surrounding areas, suggesting that waste materials disposed of in these satellite disposal sites were covered with at least a thin layer of native soils.

Based upon these results, EPA has reached the following determinations:

- a. Ground-waters at all seven parcels of property which comprise the Site are not significantly contaminated with metals. Only 0.4% of the ground-water samples analyzed from the satellite sites (3 out of 798 samples) and 1.1% of ground-water samples from the Plant site (5 out of 450 samples) exceeded ground-water protection standards identified in the September 1991 ESD. In each case, the exceedance occurred in either a background well or in a well that was found to be uncontaminated in at least one other sampling event. As a result, EPA has determined that ground-water remediation based upon metals contamination will not be performed at any of the seven parcels that comprise the overall Site. Continued monitoring for metals contamination in ground water will be part of the operation and maintenance activities at the Site so that long-term compliance with metals criteria can be evaluated.
- b. The level of contamination by metals in surficial soils at the six satellite sites is not significantly different than the levels found for the same metals in background surficial soil samples. As a result, surficial soil remediation based solely upon metals criteria will not be performed at the six satellite sites.
- c. Metals in surficial soils at the six satellite sites do not pose an unacceptable level of risk to human health. The analytical results for surficial soils were compared to benchmark concentrations that would result in a Hazard Index of 1.0 under standard residential exposure scenarios. In all cases, with one exception out of over 500 analyses, the concentrations found in surficial soils were below the benchmark corresponding to a Hazard Index of 1.0. This determination further supports EPA's determination not to perform any remediation of surficial soils at the satellite sites based solely upon metals criteria.
- d. Since ground-waters at the Site are not contaminated to

unacceptably high levels, subsurface evaluation for metals contamination of the seven parcels that comprise the Site will not be performed. Remediation of subsurface soils for metals contamination would only be appropriate if subsurface metals contamination was found to be contributing to unacceptably high levels of ground-water contamination. Accordingly, no subsurface remediation criteria for the six metals identified in the September 1991 ESD will be established.

5.2. Ground-Water Remediation Criteria for Beryllium and Thallium

The previous ESD for this Site, dated September 10, 1991, revised the ROD by adding ground-water remediation criteria for six metals. Two of those metals were beryllium and thallium. The remediation criteria for both of these contaminants were established at 1 ppb. These criteria were based upon the available toxicological data regarding potential health effects resulting from exposure to these two metals.

At that time, EPA had not promulgated Maximum Contaminant Level Goals (MCLGs) or Maximum Contaminant Levels (MCLs), for these two metals. MCLGs are criteria established under the authority of the Safe Drinking Water Act (SDWA) which are based solely on protection of human health, without consideration of technical or economic feasibility. They are not enforceable as drinking water standards for public water supplies. MCLs are established under the authority of the SDWA as standards for drinking water quality applicable to public water supply systems. MCLs are established to be protective of human health, taking into account the technical and economic feasibility of achieving compliance with the MCL.

The National Contingency Plan (NCP) contains requirements for the remediation of ground waters at Superfund sites, and these requirements include the use of MCLGs and MCLs as remediation criteria. In 40 CFR Part 300.430(e), the NCP requires the use of MCLGs, when available, as remediation criteria, except when the MCLG is set at zero, when the MCLG is relevant and appropriate to the circumstances of the release. When the MCLG is zero, or where the MCLG is otherwise not relevant and appropriate to the circumstances of the release, the MCL is to be used as the remediation criterion.

On July 17, 1992, EPA promulgated final MCLGs and MCLs for beryllium and thallium. The MCLGs for beryllium and thallium were set at 4 ppb and 0.5 ppb, respectively. The MCL for beryllium was likewise set at 4 ppb, and the MCL for thallium was set at 2 ppb. Since the MCLG and the MCL for beryllium are both 4 ppb, this concentration is set as the remediation criteria for this contaminant in ground water at the Site.

For thallium, EPA promulgated an MCL that is greater than the MCLG, even though the MCLG is not zero. Generally, if the MCLG is not zero, the MCLG and the MCL are set at the same concentration, as in the case of beryllium. In the case of thallium, however, the MCLG of 0.5 ppb is below the Practical Quantification Limit (PQL) for this contaminant. In other words, the MCLG concentration is less than the level at which thallium can be detected and quantified with consistent precision and accuracy by available analytical techniques. As such, using the MCLG as a ground-water remediation criterion is not appropriate to the circumstances of the releases from this Site, since it is not technically feasible to measure compliance with such a low concentration. Since the use of the MCLG is not appropriate, this ESD modifies the existing ROD by setting the MCL of 2 ppb as the ground-water remediation criterion for thallium.

The use of the MCL of 2 ppb for thallium remains protective of human health. In the July 17, 1992, Federal Register promulgation of the MCL for thallium, EPA states:

(T)he final PQL and MCL for thallium is being set...at 0.002 mg/l....The MCL for thallium is limited by the sensitivity of available analytical methods (i.e., it is being set at the PQL)....However, the Agency has concluded that the promulgated MCL is adequately protective of human health because the MCLG includes a large cumulative safety factor of 3,000. Thus, EPA believes that the health risks of exceeding the MCLG up to the MCL are minimal. (FR Volume 57, No. 138, p. 31815)

EPA has therefore determined that the ground-water remediation criteria for beryllium and thallium should be revised. The revised remediation criteria are 4 ppb for beryllium and 2 ppb for thallium. These criteria correspond to the final MCLs promulgated by EPA for these contaminants.

5.3. Waiver of TSCA Storage Requirements

Remedial actions to be undertaken at the Sangamo Weston Superfund Site include the transport of waste materials and PCB-contaminated soils from the six uncontrolled satellite disposal sites and storage of those materials at a controlled location, the Plant site, until such time as the LTTD treatment technology can be tested, constructed and placed in operation. EPA had previously determined that TSCA regulations for the storage of wastes contaminated with PCBs were applicable to this remedial action.

Sampling of the waste material conducted as part of the remedial design process has shown that the waste materials to be transported contain PCBs in excess of 50 parts per million (ppm), the concentration subject to regulation under the authority of the Toxic Substances Control Act (TSCA). These findings render applicable TSCA regulations governing the storage and disposal of

these materials. They are therefore ARARs for the remedial action selected by the ROD.

After consideration of these regulations as they would affect the implementation of the selected remedy, EPA has determined that these regulations should be waived in accordance with the requirements of 40 CFR 300.430(f)(1)(ii)(C). The waiver is determined to be appropriate on the basis of the fact that this storage is an interim measure that is part of an overall remedial action that will, when fully implemented, comply with all applicable or relevant and appropriate requirements (ARARs); and that compliance with these ARARs would result in greater risk to health and the environment than would result should they be waived. For example, compliance with the TSCA requirement for construction of an engineered storage facility would result in a substantial delay in removing contaminated soils and waste materials from the six satellite sites. During this delay, releases of contaminants from the satellite would continue, along with continued exposure to those contaminants by human and environmental receptors.

It is intended that the contaminated soils and waste materials from the satellite sites will be stockpiled on the plant site in locations that are already similarly contaminated and which will be included in the overall site remediation. Placing the excavated materials from the satellite sites on contaminated areas at the plant that are likewise scheduled for eventual excavation and treatment will prevent additional impacts associated with any potential migration of contaminants that might occur if the materials were stockpiled in uncontaminated areas. Measures will be taken to minimize run-on/runoff of precipitation and infiltration of any leachate to ground water, but those measures would necessarily be of a temporary nature. These measures will include an earthen berm around the storage area to prevent storm water run-on and run-off; a top liner of synthetic material covering the stockpiled soils and waste; a system whereby the liner is anchored into the berm to insure that the stockpile remains covered; and weights (for example, sand bags) placed on the liner to prevent displacement by high winds.

A significant period of time may elapse between the time that the material from the six satellite sites is excavated and transported to the Plant site, and the time when treatment of soils and waste materials by LTTD will commence. This is due to the need for treatability studies to be conducted on the various LTTD treatment units that are commercially available, the time necessary to complete design studies, and the time necessary for the PRPs and their technical consultants to prepare specifications and enter into contracts with a vendor for the chosen remedial technology. This period of time could conceivably be as much as two to three years after the material from the satellite sites could be excavated and transported. During this period, the excavated materials will be stored in a controlled access area within the

boundaries of the Sangamo Plant site.

5.2.1. ARARs to be Waived

The primary regulations recommended for waiver are those related to the storage for disposal of TSCA regulated wastes. Since the proposed interim action will involve only storage of these materials, the final fate of which will be treatment and disposal in a manner consistent with all identified ARARs, there is no need to waive any ARARs directly related to treatment or disposal, such as the TSCA regulations governing the disposal of PCB contaminated wastes.

The regulations governing the storage for disposal of PCBs and PCB wastes are found at 40 CFR Part 761, Subpart D. The storage regulations are contained in Section 761.65. The storage requirements for PCBs and PCB Items are presented in detail in Sections 761.65(b)(1)(i-v) and 761.65(c). It has been determined that the requirements of Sections 761.65(b)(1)(i-iv) and 761.65(c) should be waived.

Section 761.65(b)(1)(i) requires adequate roof and walls to prevent rain water from reaching stored PCBs and PCB Items.

Section 761.65(b)(1)(ii) requires an adequate floor with continuous six inch high curbing. Minimum requirements for the volume encompassed by the floor area and height of curbing are also specified.

Section 761.65(b)(1)(iii) requires that the curbed area contain no valves, drains joints or other openings that would permit liquids to escape from the curbed area.

Section 761.65(b)(1)(iv) requires that floors and curbing be constructed of continuous smooth impervious materials that minimize penetration of PCBs.

Section 761.65(b)(1)(v) requires that the storage facility not be located within a 100-year floodplain. Since the potential storage locations at the plant site are all above the 100-year flood elevation, this section need not be waived.

Section 761.65(c) allows PCB Items to be stored on a temporary basis without meeting the structural requirements of Section 761.65(b) described above. PCB Items are defined as any PCB Article, PCB Article Container, PCB Container, or PCB Equipment, that contains or has (as) a part of it any PCB or PCBs. This section limits the storage of these PCB Items to no more than thirty (30) days. Since the waste material at the satellite sites contains "off-spec" PCB capacitors, and perhaps other PCB Items, this ARAR will also have to be waived in order for the storage of

PCB Items contained in the satellite site materials to exceed thirty days.

Waivers of the requirements for a TSCA waste storage facility, which amount in essence to construction of a permanent structure with a roof, walls and carefully constructed floor, are necessary in order to allow the temporary storage of contaminated wastes and soils from the satellite sites. The nature of the remedial action at Sangamo Operable Unit 1 is that it will be a one-time operation, as opposed to a continuing process. Construction of an engineered storage structure for the contaminated soils and waste materials will result in significant delay in the excavation and removal of these materials from the six satellite sites. Appropriate waivers exist (as discussed below) that allow the remedy to proceed without this unnecessary delay. In addition, the temporary measures described above will be implemented in order to minimize migration of contaminants from the temporary storage facility. Region IV TSCA program personnel concur in the recommendation that these waivers be granted.

5.2.2. Basis of Waiver

The regulations that comprise the National Contingency Plan (NCP) are found at 40 CFR Part 300. The NCP was published in final form in the Federal Register (FR) Volume 55, No. 46, dated March 8, 1990. In Section 300.430(f)(ii)(C), six criteria are provided under which ARARs for remedial actions can be waived. In addition, guidance as to the applicability of these six criteria is provided in the preamble to the proposed NCP regulations, published in the FR Volume 53, No. 245, dated December 21, 1988.

The recommendation that the TSCA storage regulations cited above should be waived is based upon the waiver criteria found in Sections 300.430(f)(ii)(C)(1) and 300.430(f)(ii)(C)(2), which are, respectively, that the proposed action is an interim measure and will become part of a total remedial action that attains all ARARs, and that compliance with the TSCA storage ARARs will result in greater risk to human health and the environment than would result under the proposed action. These two criteria apply to the recommended waiver for all TSCA ARARs cited above.

A. Section 300.430(f)(ii)(C)(1); Interim Measures

The excavation of contaminated soils and waste materials from the satellite sites and subsequent storage of these materials at the plant site is an interim measure, i.e., part of an overall remedy that will when completed in its entirety attain all ARARs. The remedy selected in the ROD includes eventual treatment of all contaminated soils and wastes by low temperature thermal desorption (LTTD). The excavated material from the satellite sites will eventually be subjected to LTTD, along with similarly contaminated

materials from the Plant site itself. No permanent storage of PCB-contaminated soils or wastes will occur, and no additional storage of such materials will occur once the remedy is complete (i.e., the storage of contaminated materials will be a one-time event, rather than a recurring event).

The interim storage will be necessary so that treatability studies, full-scale design and system start-up activities can take place for the implementation of the selected remedy. These measures are in turn necessary so that the Agency can be assured of adequate performance of the selected treatment technology and so that the PRPs can identify and select a suitable technology vendor. This process is expected to take at least two years, and may take as much as three years. Additional delays could result should the selected soil treatment technology (LTDD) prove to be incapable of achieving the performance criteria set forth in the ROD, necessitating a change in the treatment technology, and an amendment to the ROD.

The materials excavated from the satellite sites will be stockpiled in areas that are themselves more heavily contaminated than the excavated and stored soils and wastes. These highly contaminated areas on the plant site are likewise slated for excavation and treatment by LTDD, so that stockpiling the satellite site materials on top of the contaminated plant site areas will have no appreciable effect on environmental conditions. Any leachate that may be generated by infiltrating rainfall will be addressed by the ground-water portions of the overall remedy, and sufficient controls will be placed on the stockpile to insure that any stormwater run-on/runoff and wind-blown dispersion will be minimized and kept on-site.

The construction of an engineered storage facility that complies fully with the technical criteria set forth in the TSCA regulations does not appear to be warranted for a one-time, relatively short-term stockpiling operation that is an interim component of an overall remedial action. An engineered storage facility at the Sangamo plant site would never be used again for the storage of TSCA-regulated wastes, the purpose for which it would originally be designed.

In the preamble to the proposed NCP, a situation analogous to the one at the Sangamo site is presented as an example of an appropriate use of the interim measures waiver:

For example, the selected remedy at a site may include excavation and treatment of the source. However, the treatment method may require treatability testing or time for set-up or construction. During this time, an interim measure involving stabilization of the source, such as by use of a cap, may be appropriate. In such a circumstance, the interim measure waiver would allow the temporary stabilization actions

to constitute the initial components of a phased remedial response; these actions would not be required to attain landfill closure ARARs because the response would not be complete. (FR Vol. 53, No. 245, for December 21, 1988, p. 51439)

This discussion describes essentially the same circumstances as those found at the Sangamo site; the difference is only that at Sangamo the proposal is to use temporary storage, rather than stabilization, as the interim measure, and that the ARARs to be waived are the TSCA storage regulations rather than the RCRA landfill requirements. This example is a clear indication that the use of the interim measures waiver is an appropriate course of action for the proposed remediation at the Sangamo site.

Based upon the interim nature of early soil removal from the satellite site, therefore, a waiver of TSCA storage ARARs is included as part of this ESD.

- b. Section 300.430(f)(ii)(C)(2); Greater Risk to Health and the Environment.

The contaminated soils and materials at the six satellite sites comprising a portion of the overall Sangamo Operable Unit 1 Site are currently in an entirely uncontrolled setting. With the exception of the Breazeale site, there are no engineered controls in place to limit the migration of contaminants from the satellite disposal sites into environmental media, such as ground waters, surface waters, subsurface soils, etc. There is also essentially no control over access to the disposal sites, except that exercised by the individual landowners. The PRP, Schlumberger Industries, Inc., does not own the properties on which the satellite sites are located, and therefore cannot exercise such control over public access to the six satellite sites as they can to the contaminated areas on the Plant site itself.

EPA has not required SII to provide access control over the satellite sites because the contamination at the surface of each site does not pose an unacceptable level of risk to occasional occupants or trespassers on the sites. (Please refer to the Baseline Risk Assessment in the Remedial Investigation report for further discussion and to the results of metals analyses discussed above.) The primary source materials, i.e., the PCB-contaminated wastes and soils, are in the subsurface, and persons who might be on-site for short periods of time are not exposed to this highly contaminated PCB source material.

This does not insure, however, that the satellite sites may not be disturbed at some time between the present and the time when the treatment system will become operational. Should this occur, it is possible that the highly contaminated subsurface materials will

become exposed, creating a situation where greater risks to public health would result. It should also be recognized that, even though the risks posed by the satellite sites via contact with surface soils are not currently outside the acceptable risk range, some risk due to incidental contact is present. Persons who come into contact with the surface soils under the present conditions will be subjected to an increased incremental risk. Even though this risk may be minimal, some finite increase in risk to public health exists under site conditions. Rapid and early removal of the satellite site materials to the controlled environment of the plant site will eliminate these risks.

In addition, releases of contaminants from the satellite sites into the environment will continue to occur during the interim between the present and whenever the satellite site soils and waste materials are removed. These releases consist of runoff of contaminated soils into nearby streams, leaching of contaminants into ground waters, and uptake of site contaminants into biological systems (eg., bioaccumulation and/or biomagnification). The sooner that the contamination in the satellite sites is placed into a controlled environment at the plant site, the sooner these releases will cease to occur. Expedited removal of the contaminated materials from the satellite sites will not only limit or minimize the mass of contaminants released into the environment, but will also render the other site-related remedial actions, such as ground-water remediation at some of the satellite sites, more efficient and cost-effective.

Obviously, then, any delays in removing the satellite site materials from their present, exposed state to the proposed storage location at the plant site will result in increased exposure of the public to site contaminants and continued and ongoing releases of contaminants into various environmental media and biological systems. Full compliance with the TSCA storage ARARs cited above will require a lengthy process of design, contracting and construction of an engineered storage facility. This process conceivably could take two to three years, whereas if these ARARs are waived, excavation and transport of the satellite site materials could be accomplished as early as late summer, 1993. While it is not possible to quantify the reduction of risk that might be achieved without knowing the delay that would result from full compliance with these ARARs, and while it is reasonable to assume that this risk reduction would be minor in absolute terms, it is clear that greater risk to health and the environment will occur the longer that the satellite sites remain in their current status.

Release of contaminants will continue while the materials are stockpiled in temporary storage locations at the plant site, but control measures will be implemented to minimize and control these releases. Release to ground waters will be controlled by overall ground-water remedial actions mandated in the ROD for the plant

site disposal areas. Run-on and runoff controls will be implemented for the stockpile. All potential public exposure to contaminated soils and wastes will be eliminated by placing the materials in a controlled access area, within the bounds of the Sangamo industrial facility at the Plant site. By these means, both releases and exposure are reduced and/or eliminated, reducing risks to human health and the environment.

Therefore, based on the increased risks to human health and the environment that will result from the delays incurred from full compliance with TSCA storage ARARs, this ESD includes a waiver of those storage requirements as ARARs for the remedial action.

6.0 Support Agency Comments

South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed this ESD and concurs in its contents.

7.0 Statutory Determinations

The modifications made to the ROD by this ESD are designed to determine a remedy at the Site that will be protective of human health and the environment, and will comply with Federal and State requirements that are either applicable or relevant and appropriate, or alternatively to provide waivers of those requirements in accordance with the provisions of the NCP.

This ESD fulfills EPA's commitment made in the ESD dated September 10, 1991, to determine if any additional criteria for metals are necessary, and to choose any additional remedial technologies for metals as appropriate, based upon the results of the additional sampling and analysis program described in that ESD. EPA has determined that the completed additional sampling and analysis program indicate that such additional criteria and technologies are unnecessary to protect human health and the environment at this Site. A 30-day public comment period will be included as part of this ESD, and a responsiveness summary prepared for any comments received during that period.

Any comments on this ESD should be submitted in writing to one of the following persons:

Cynthia Peurifoy, Community Relations Coordinator
SC Section, North Superfund Remedial Branch
U.S. Environmental Protection Agency, Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

or,

R. Bernie Hayes, Remedial Project Manager
SC Section, North Superfund Remedial Branch
U.S. Environmental Protection Agency, Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

Patrick M Tobin

Patrick M. Tobin
Acting Regional Administrator

6-18-93

Date